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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/803,819	03/13/2001	Teruhiko Hagiwara	7420-081-999	1331

20583 7590 06/02/2004

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EXAMINER

VARGAS, DIXOMARA

ART UNIT PAPER NUMBER

2859

DATE MAILED: 06/02/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application N .

09/803,819

Applicant(s)

HAGIWARA, TERUHIKO

Examiner

Dixomara Vargas

Art Unit

2859

-- The MAILING DATE of this communication appears in the cover sheet with the correspondence address --

## P r i d for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
  - If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
  - If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
  - Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 02 March 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 3-9, 12-17 and 20-28 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 3-7, 9-16, 20-24, 26 and 28 is/are rejected.
- 7) ☒ Claim(s) 8, 17, 25 and 27 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 13 March 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## P r i rity under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### *Claim Rejections - 35 USC § 102*

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 3-7, 9-16, 20-24, 26 and 28 are rejected under 35 U.S.C. 102(e) as being anticipated by Hawkes et al (US 6,459,263).

With respect to claims 3, 10 and 20, Hawkes discloses a method for measuring an indication of attributes of materials containing a fluid state, the method comprising the steps of (Abstract): providing a time-domain signal indicative of attributes of said materials in a single event measurement (Figures 3A-3C); constructing a time-domain averaged data train from said signal (Column 9, lines 34-37), the averaging being performed over two or more time intervals  $\Delta_i$  wherein at least two of said two or more time intervals  $\Delta_i$  are different (Figure 5) and computing an indication of attributes of said materials from the time-domain averaged data train (Columns 5 and 10, lines 9-11 and 14-38 respectively).

3. With respect to claims 4, 14 and 22, Hawkes discloses the following expression is used to construct the time-domain averaged data train:  $S_{\Delta}(t) = \int_t^{t+\Delta} dt' S(t') / \Delta$  where  $S(t)$  is the provided time-domain signal (Column 9, lines 34-37; Figure 5).

4. With respect to claims 5, 15 and 23, Hawkes discloses the interval  $\Delta_i$  is fixed and the time-domain averaged data train is constructed at times  $t = t_0, t_0 + \Delta, t_0 + 2\Delta, \dots t_0 + N\Delta$  (Figure 5).
5. With respect to claim 6, Hawkes discloses the time-domain signal is an NMR echo train (Abstract).
6. With respect to claims 7, 16 and 24, Hawkes discloses the step of computing an indication of attributes is performed using inversion of the constructed time-domain averaged data train into T2 domain (Column 10, lines 14-27).
7. With respect to claims 9, 11, 21 and 28, Hawkes discloses the step of averaging two or more constructed time-domain averaged data trains to increase the signal-to-noise ratio (SNR) of the measurement (Column 9, lines 34-37).
8. With respect to claim 26, see rejection of claims 3-6 above.

***Allowable Subject Matter***

9. Claims 8, 17, 25 and 27 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.
10. The following is a statement of reasons for the indication of allowable subject matter:
11. With respect to claims 8, 17, 25 and 27, the claims have been found allowable over the prior art because the prior art fails to teach or fairly suggest a method for measuring an indication of attributes of materials containing a fluid state, the method comprising the step wherein the T2 distribution is estimated using the following expression  $S_{\Delta}(t) = \sum_{(T_2)} \phi(T_2) \exp(-t/T_2)(1 - \exp(-$

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$\Delta / T_2$ )) + Noise where  $\phi(T_2)$  is the porosity corresponding to the exponential decay time  $T_2$  in combination with the remaining limitations of claim 3.

***Response to Arguments***

12. Applicant's arguments filed on 03/02/04 have been fully considered but they are not persuasive.

13. Applicant argues that independent claims 3, 12, 20 and 26 are patentable over the cited art at least because Hawkes fails to disclose, teach or even suggest: (1) constructing a time-domain averaged data train from a single-event measurement signal; and (2) averaging over two or more time intervals, at least two intervals being different or of variable length.

14. The examiner disagrees with applicant arguments because the recitation single event measurement as recited in the claims has been interpreted as measurements in a specific single position being one single event and the change to another position being a different event. Applicant is reminded that the examiner is entitled to give the broadest interpretation possible to the claim language. Therefore, the rejection is believed to be proper. In addition, in response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., variable length) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

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15. Applicant argues that Hawks does not disclose, teach or even suggest that time-domain averaging can be performed over different time intervals, as recited in independent claims 3, 12, 20, or over variable time intervals, as recited in claim 26.

16. The examiner disagrees with applicant arguments because Figure 3A shows a RF pulse wherein the refocusing pulses (180Y) are occurring at different times and the echo spacing is different. In addition, Hawkes discloses the step of averaging data acquire with the pulse sequence (sequence with different times mentioned above) to obtain the NMR measurement for the purpose of improving the SNR (Column 9, lines 35-37; Figure 5). Applicant is reminded that the examiner is entitled to give the broadest interpretation possible to the claim language.

Therefore, the rejection is believed to be proper.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dixomara Vargas whose telephone number is (571) 272-2252.

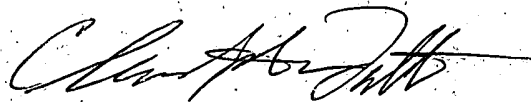
The examiner can normally be reached on 8:00 am. to 4:30 pm..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Diego Gutierrez can be reached on (571) 272-2245. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Dixomara Vargas  
Art Unit 2859  
May 28, 2004



Diego Gutierrez  
Supervisory Patent Examiner  
Technology Center 2800

**CHRISTOPHER W. FULTON**  
**PRIMARY EXAMINER**